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PATENT ABSTRACTS OF JAPAN

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(21)Application number : 02-114196 (71)Applicant : TOYODA GOSEI CO LTD
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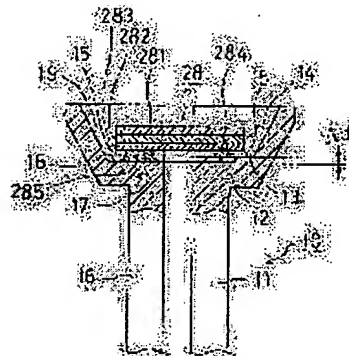
(22)Date of filing : 27.04.1990 (72)Inventor : MANABE KATSUhide
MABUCHI AKIRA
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(54) LIGHT-EMITTING DIODE

(57)Abstract:

PURPOSE: To eliminate the inclination of an optical axis of light radiated from a light-emitting chip by a method wherein two lead member where flat parts on which the light-emitting chip is mounted and bonded by a solder bump are provided and the height of the flat parts of the two lead members is made different.

CONSTITUTION: Since an electrode part 284 of an n-GaN layer 282 for a light-emitting chip 28 is formed by utilizing the inside of a hole made in one part of an n-GaN layer 283; it is not possible to make its size as large as an electrode part 285 of the i-GaN layer 283. When solder bumps 15 are formed at the electrode parts 284, 285, the difference in height between the solder bumps is caused in proportion to the area ratio of the electrode area of the i-GaN layer to the electrode area of the n-GaN layer. When the difference in level of the nearly same size is formed at flat parts 13, 18 of lead members 11, 16 so as to correspond to the difference in height between the bumps, light radiated from the surface of the bonded light-emitting chip 28 is in the designed optical-axis direction decided by the flat parts 13, 18 of the lead members 11, 16 and is stabilized.



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